The Effects of Knee Bracing on Reactive Soccer Agility, Kicking Velocity, and Muscle Activation

James Fimognari[1] & Paolo Sanzo[1]

[1]Lakehead University, School of Kinesiology, Ontario, Canada

BACKGROUND/OBJECTIVES: Low brace compliance remains an issue among athletic populations and whether protective knee braces impact soccer performance after anterior cruciate ligament (ACL) reconstruction is unclear. In soccer, we also see the highest reinjury rate for ACL injuries but the reason for this is not well understood. The purpose of this study is to see if performance differences exist between soccer players who have undergone ACL reconstruction and do not wear a brace and those who do wear a brace.

METHOD: Prospective participants with an ACL injury will be recruited using purposive and snowball sampling and placed into one of two groups: 1) use a brace and 2) do not use a brace. Participants will complete three trials of a soccer-specific modified Y-agility test to measure reactive agility time. Participants will also complete a kicking drill which will measure kicking velocity. Surface electromyography (SEMG) of the participants' biceps femoris (BF), rectus femoris (RF), and gluteus medius (GM) will also be measured during the completion of the agility and kicking tasks.

Statistical analysis will be completed for the variables of interest using descriptive and inferential statistics using IBM SPSS© statistics software, with an alpha level of $p<05$.

CONCLUSION/IMPLICATION: It is hypothesized that the use of a protective knee brace will result in no significant difference in reactive agility time, a moderate increase in kicking velocity, and SEMG will significantly increase in the BF and RF, due to the skin contact from the brace activating sensory receptors leading to improvements in neuromuscular control of the knee joint, while the GM will have a moderate increase. The results can be used to determine if knee bracing affects soccer players' performance abilities.